

REMARKS

Claims 11, 22 and 23 are pending in this application. Claims 1-10 and 12-21 were previously canceled, without prejudice or disclaimer. By this Amendment, claims 11 and 23 are amended to clarify the claimed subject matter. Accordingly, claims 11, 22 and 23 are presented for continued examination, with claims 11 and 23 being in independent form.

Claim 23 was rejected under 35 U.S.C. § 102(b) as purportedly anticipated by U.S. Patent No. 5,764,245 to Yokoi. Claims 11 and 22 were rejected under 35 U.S.C. §103(a) as purportedly unpatentable over Yokoi in view of U.S. Patent No. 5,143,904 to Minato et al.

The present application relates to double-sided printing, and in particular an ink-jet recording apparatus configured to provide double-sided printing with a high-level of image quality on both sides. Conventional double-sided printing techniques typically encounter the problem that the image is blurred from ink seeping from one side to the other side.

Applicant devised an improved an ink-jet recording apparatus configured to provide double-sided printing which includes a containing member containing a recording medium having a base member and granular material coated on both sides of the base member, wherein the thickness of the base member falls within a range between 100 micrometers through 500 micrometers, and the amount of the granular material falls within a range between 10 g/m² and 100 g/m² on each of both sides and roughness of the surfaces of the recording medium coated granular material is smaller than the roughness of the base member, and therefore the blurring of ink into the other side can be prevented. Each of independent claims 11 and 23 addresses these features, as well as additional features.

Yokoi, as understood by applicant, proposes a recording apparatus configured to utilize, in order to avoid needing a large capacity buffer, a line buffer to receive and temporarily store data from a host computer for a scanning line of the image to be printed. The recording apparatus proposed by Yokoi is described by Yokoi as purportedly capable of recording on both sides of the medium.

However, Yokoi is not concerned with the problem of blurring of the image in double-sided printing caused by ink seeping from one side to the other side of the medium.

Moreover, as acknowledged in the December 14, 2006 Office Action, Yokoi does not teach or suggest an ink-jet recording apparatus including a containing member containing a recording medium having a base member and granular material coated on both sides of the base member (and therefore of course also fails to teach or suggest that the thickness of the base member falls within a range between 100 micrometers through 500 micrometers, and the amount of the granular material falls within a range between 10 g/m^2 and 100 g/m^2 on each of both sides and roughness of the surfaces of the recording medium coated granular material is smaller than the roughness of the base member), as provided by the subject matter of amended claim 23

Minato, as understood by applicant, proposes a dye image-receiving sheet for thermal transfer printing which comprises a substrate sheet composed of a support paper sheet, a front coated layer comprising a thermoplastic resin, and optionally, a back coated layer comprising a thermoplastic resin, and a dye image-receiving layer comprising a resinous material capable of being dyed with a sublimating dye.

However, Minato, like Yokoi, is not concerned with the problem of blurring of the image in double-sided printing caused by ink seeping from one side to the other side of the medium.

Claim 11 of Minato, which was cited in the Office Action, states as follows:

11. The dye image-receiving sheet as claimed in claim 1, wherein the resinous material in the dye image-receiving layer comprises at least one member selected from the group consisting of polyester resins, polycarbonate resins, polyacrylic resins and polyvinyl acetate resins.

Minato, column 7, lines 47-59, column 8, lines 3-9, column 13, lines 53-62, and column 14, lines 8-9, which was also cited in the Office Action, states as follows:

In an embodiment of the dye image-receiving sheet of the present invention, the front and back surfaces of the support sheet preferably have a surface roughness (Ra value) of 0.5 μm or more, determined in accordance with JIS B0601, the front coated layer surface preferably has a surface roughness (Ra value) of 0.5 to 2.0 μm , and the dye image-receiving layer surface preferably has a surface roughness (Ra value) of 0.1 to 2.0 μm , preferably 0.5 to 2.0 μm . This surface roughness (Ra value) can be determined in accordance with JIS B0601.

The term surface roughness refers to a centerline average roughness (Ra) as defined by the following equation:

...

The support sheet surfaces having a surface roughness (Ra value) of 0.5 μm or more provide a firm bonding with the front and back coated layers.

The front coated layer surface having a surface roughness (Ra value) of 0.5 to 2.0 μm contributes to a firm fixing and forming of the dye image-receiving layer having a satisfactory smoothness.

...

The support sheet was composed of a fine paper sheet having a basis weight of 170 g/m^2 , a front surface roughness (Ra value) of 1.8 μm and a back surface roughness (Ra value) of 2.5 μm . coated layer having a weight of 30 g/m^2 was formed from a polyethylene resin blended with 10% by titanium dioxide by a melt-extrusion laminating method, and activated by a corona discharge treatment. The front coated layer had a surface roughness (Ra value) of 1.0 μm , and a Bekk smoothness of 300 seconds.

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A back coated layer having a weight of 25 g/m^2 was formed on the back surface of the support sheet by a melt-extrusion laminating method and had a surface roughness (Ra value) of 1.5 μm .

Thus, while Minato proposes a dye image-receiving sheet of a specified construction which is purported to yield said surface roughness properties which facilitate bonding thereto, Minato does not provide any specific teachings or suggestions towards obtaining high quality images in double-sided printing.

The cited art simply does not teach or suggest an ink-jet recording apparatus including a containing member containing a recording medium having a base member and granular material coated on both sides of the base member, wherein the thickness of the base member falls within a range between 100 micrometers through 500 micrometers, and the amount of the granular material falls within a range between 10 g/m² and 100 g/m² on each of both sides and roughness of the surfaces of the recording medium coated granular material is smaller than the roughness of the base member, as provided by the subject matter of claim 23.

Independent claim 11 is patentably distinct from the cited art for at least similar reasons.

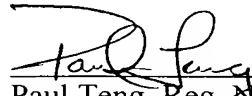
Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 11 and 23 and any claims depending therefrom are patentable over the cited art.

In view of the amendments to the claims and remarks hereinabove, Applicant submits that the application is now in condition for allowance. Accordingly, Applicant earnestly solicits the allowance of the application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Patent Office is hereby authorized to charge any fees that are required in connection with this Amendment, and to credit any overpayment, to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul Teng", is written over a horizontal line.

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